

At the end of the application, after the claims, please add the following paragraph:

-- ABSTRACT

A novel gene defining a novel enzyme in the UDP-D-galactose: beta-N-acetylglucosamine/ beta-N-acetylgalactosamine beta 1,3galactosyltransferase family, termed beta3Gal-T5, with unique enzymatic properties is disclosed. The enzymatic activity of beta3Gal-T5 is shown to be distinct from that of previously identified enzymes of this gene family. The invention discloses isolated DNA molecules and DNA constructs encoding beta3Gal-T5 and derivatives thereof by way of amino acid deletion, substitution or insertion exhibiting beta3Gal-T5 activity, as well as cloning and expression vectors including such DNA, cells transfected with the vectors, and recombinant methods for providing beta3Gal-T5. The enzyme beta3Gal-T5 and beta3Gal-T5-active derivatives thereof are disclosed, in particular soluble derivatives comprising the catalytically active domain of beta3Gal-T5. Further, the invention discloses methods of obtaining beta 1,3galactosyl glycosylated saccharides, glycopeptides or glycoproteins by use of an enzymically active beta3Gal-T5 protein or fusion protein thereof or by using cells stably transfected with a vector including DNA encoding an enzymatically active beta3Gal-T5 protein as an expression system for recombinant production of such glycopeptides or glycoproteins. Also a method for the identification of DNA sequence variations in the beta3Gal-T5 gene by isolating DNA from a patient, amplifying beta3Gal-T5-coding exons by PCR, and detecting the presence of DNA sequence variation, are disclosed. --